

CLAIMS

1. Process for obtaining a heating fluid to be used as indirect heat source for carrying out endothermic reactions, comprising the steps of:

5 -feeding a flow comprising hydrocarbons and a gas flow comprising oxygen to a combustor, wherein such flows are suitably compressed;

- burning said hydrocarbons in presence of said oxygen in the combustor, thus obtaining a high temperature fluid
10 comprising carbon dioxide and oxygen;

characterised in that it further comprises the step of feeding a flow comprising water, preferably in the form of vapour, to said high temperature fluid and/or to said combustor.

15 2. Process according to claim 1, characterised by the fact of feeding said water in an amount comprised between 0,1 and 0,7 times the flow comprising oxygen.

3. Process according to claim 1, characterised in that said flow comprising water is fed to said high temperature fluid
20 and/or to said combustor as vapour obtained through evaporation of a water flow at a predetermined pressure.

4. Process according to claim 1, characterised in that said flow comprising water is fed in said combustor in the form of vapour together with said flow comprising oxygen.

25 5. Process according to claim 4, characterised in that it comprises the steps of:

- feeding at a predetermined pressure said flow comprising water into the flow comprising oxygen upstream of said combustor;

- heating the so-obtained flow in such a way to let the water at least partially evaporate and obtain a flow comprising oxygen and water vapour.

6. Process according to claim 4, characterised in that it comprises the steps of:

- heating said flow comprising water;
- feeding at a predetermined pressure the suitably heated flow comprising water into the flow comprising oxygen upstream of the combustor, in such a way to let the water at least partially evaporate and obtain a flow comprising oxygen and water vapour.

7. Process for carrying out hydrocarbon reforming reactions in an exchanger type reformer, comprising the steps of:

- feeding a gas flow comprising hydrocarbons and water vapour in a reaction space (25) comprising catalyst in said exchanger type reformer;
- feeding a heating fluid in a space (26) adjacent to said reaction space (25) in said exchanger type reformer;
- reacting in a catalytic way the gas flow comprising hydrocarbons by indirect heat exchange with the heating fluid, thus obtaining a gas flow comprising hydrogen;

characterised in that said heating fluid comprises water, preferably in the form of vapour.

8. Process [according to claim 7,] characterised in that said heating fluid is obtained through a process according to [any one of the claims from 1 to 6] *claim 1*

9. Process according to claim 8, characterised in that it further comprises the step of cooling down the heating fluid leaving the exchanger type reformer by indirect heat exchange with a flow comprising oxygen and/or water fed to

said combustor.

10. Use of water, preferably in the form of vapour, in a process for obtaining a heating fluid to be used as indirect heat source for carrying out endothermic reactions, such as hydrocarbon reforming reactions.
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